

Recycling Handbook for Recreational Areas:

Case Studies from Seven National Parks



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Introduction

You may be the superintendent of a national park, forest or state recreational area. More likely, you're a park's chief of interpretation or maintenance, or a major manager at a recreational facility. Whatever your role, you're interested in helping visitors learn about the environment and conserve natural resources.

If you're interested in starting a recycling program for visitors at your park or recreational area, this booklet is for you. It's intended to serve as a reference guide for planning a recycling program for the most important people in your park — the visitors.

Each section of this booklet draws on experience gained from launching and managing this kind of recycling effort. Between 1990 and 1992, seven national parks began programs to recycle plastic, aluminum and glass through a partnership between the National Park Service, The Dow Chemical Company and Huntsman Chemical Corporation. These recycling parks are:

- Great Smoky Mountains (Tennessee/North Carolina)
- Grand Canyon (Arizona)
- Yosemite (California)
- Mount Rainier (Washington)
- Everglades (Florida)
- Acadia (Maine)
- National Mall (Washington, D.C.)

These programs demonstrate that recycling in recreational areas is very similar to recycling in a city or community. But some key differences do exist! It's important to consider special needs related to each park's location, size, terrain and number of visitors.

Recycling is only one important step in managing solid waste effectively—it cannot solve all of our waste management issues. Solid waste experts and park managers agree that recycling needs to be part of an integrated resource management system. The National Park Service recently began an Integrated Solid Waste Alternatives Program (ISWAP), designed to help parks use a variety of waste management practices. This approach includes examining several methods:

- Waste reduction in park operations,
- Visitor and park employee recycling programs,
- Composting,
- Waste-to-energy combustion, and
- Landfilling.

This booklet should be used as part of a comprehensive resource management plan for your park or recreational facility. The appendix lists contacts and resources for additional information.

Remember: every park or recreational area is different, and there is no single approach to designing an effective waste management program. The following pages are designed to help you generate ideas and strategies for the recycling portion of your overall resource management plan.

Step 1 Getting Started

First, bring together your key staff as a recycling committee to help design and implement the program. Try to involve the superintendent, maintenance director, concessions manager, education and public information specialists, and if possible, a representative of the local solid waste planning office.

Then appoint a recycling coordinator to lead the program. This person will be responsible for day-to-day management of issues related to the recycling start-up. Good candidates for the coordinator's position include staff with an interest or experience in recycling, or the chief of maintenance.

Key steps

Thorough planning will help ensure a successful recycling program. Recycling involves several steps:

Collection — Gathering a variety of recyclable materials, such as plastics, glass, aluminum or paper

Storage — Holding collected materials before transportation

Transportation — Distributing recyclables to recovery facilities

Education — Reaching out to park employees and visitors to encourage participation in the recycling program

Repurchase — Consumer use of recycled products, which may "close the loop" or bring the recycling process full circle

There are many recycling options from which to choose. What materials will you collect? Will visitors separate materials into different receptacles or place them in the same bin? Will you have a central drop-off station for recyclables or multiple containers located throughout the park? Answers to these and other questions will depend on your park's size, location, number of visitors, and your recycling program objectives.

Does your community recycle?

It's essential to design a park recycling program that is compatible with local efforts. If your community has a recycling program, tell the community program coordinator you're interested in starting a recycling effort for park visitors. Ask to be a member of the solid waste or recycling committee to make contacts and learn more about how to design your recycling program.

Conduct a waste audit

It's not as bad as you think! In order to make sound decisions about the recycling program, you should conduct a "waste audit." Also referred to as a waste stream assessment, this audit will identify the quantity, composition and sources of waste in your park or recreational area.

What does the audit tell you?

Quantity and composition data will tell you the volume and type of recyclables in your waste stream — such as plastics, glass, aluminum, paper or steel. This knowledge will help you determine which materials to recycle, select a collection method and purchase equipment. Identifying the main sources of waste — such as administrative offices, visitors, concession areas or facility maintenance — will help identify the best locations for collection. The entire range of your program depends on the audit.

The audit consists of measuring the amounts of materials disposed during a specified time period. It is important to keep it simple and consider seasonal or visitation fluctuations. Many resources are available to lead you through in-depth procedures for waste assessments. Check the appendix of this guide, or call your city, county or state solid waste management office for more information.

Check into markets

Once you've estimated the volume and types of material in your waste stream, you'll need to find out if markets exist for these materials in your area. The presence of markets will determine if it is feasible to recycle some materials. It's also important to know what recyclables are collected in nearby communities, and the costs and conditions for collecting and preparing these materials.

Contact your state or local solid waste planning office to obtain information on recycling businesses in your area. National trade associations for aluminum, steel, glass, paper and plastics also offer market information and references to buyers and users of recycled materials. Your local yellow pages directory is another good resource for identifying recycling contractors. Most are listed under "scrap dealers" or "recyclers."

There are three general outlets for recyclable materials

- Brokers
- End-users, and
- Internal markets

Brokers purchase materials and sell them to end-users. End-users then reprocess the items and manufacture them into new products. Examples of internal markets include municipal governments that may use tires to build playground equipment or parks that recycle yard waste and brush into landscaping mulch.

Your recycling committee should explore all of these opportunities. Different markets require different recycling approaches, and you may need to tailor your recycling program to meet these needs.

Be flexible!

As you plan and implement your recycling program, keep in mind that even the best municipal or recreational recycling programs have required some modification or reevaluation. Set realistic goals and objectives that can be updated to reflect your program's progress.

Case Study: Great Smoky Mountains

Recycling in a Drive-Through Park

Great Smoky Mountains National Park was the first national park to begin recycling plastics, glass and aluminum as part of the National Park Service, Dow and Huntsman effort. The main challenge was related to the park's size and visitation pattern. Because most of the nine million annual visitors drive through the park, it was important to make recycling easy for visitors to understand and participate.

First, a recycling task force assessed areas of high visitation in the park. Dow and Huntsman then approached the Cherokee Boys Club, a tribally owned local business that managed collection of the park's solid waste, to serve as a collector for the recyclables. They established a plan for picking up mixed (commingled) recyclables at peak visitation areas up to three days a week in the summer. Bags of recyclables were loaded on a truck parked outside the park. When full, the trailer was shipped to a recycler in nearby Tennessee for sorting and processing.

After the third year of the recycling program, the park's staff made several operational changes to reduce contamination, improve collection and reduce costs. They established "recycling areas" at the most popular locations, where they placed two separate dumpsters — one for aluminum, one for plastic — that are hauled away for recycling when full. Food, glass, paper and other wastes are sent to a facility near the park to be ground up and "recycled" into compost for park landscaping.

This integrated process allows the Great Smoky Mountains to recycle or recover more than 90 percent of its waste.



Case Study: National Mall

Recycling in an Urban Setting

Because the National Mall in Washington, D.C., is an urban park based in a major city, it presented special recycling challenges. For example, large collection trucks can't travel the network of walking paths in the park. And there is no central entrance to the park, making it difficult to inform visitors about the recycling program.

When planning for recycling at the Mall, park managers reviewed waste studies to find key areas for recycling. Recycling bins were designed to match the park's waste containers and to display simple, clear symbols for foreign visitors.

To enlist local support, park officials met with the city's office of recycling. As a result, they identified a local recycling contractor to manage collection, sorting and distribution of park recyclables. The park's concessionaire also played an important role in switching from coated paper cups to recyclable polystyrene cups, which helped steer a significant percentage of park waste away from the landfill. To address the challenge of collecting recyclables without disturbing visitors on the park's walking paths, the recycling contractor uses a small, open stake-bed truck. Bags are emptied onto the truck for preliminary sorting by the collection crew.

Recycling bins were checked daily during the first summer season of the program to monitor use and contamination levels. As a result, 50 more bins were installed in key locations to handle the volume of recyclables, and more wayside exhibits were added to enhance visitor communications. The program has been successful: in the first 18 months, the National Mall collected more than 1,000 tons of recyclable materials!



Step 2

Designing the Recycling Program



ou may already have a basic concept of your recycling program design. But there are several key factors to consider when implementing a recycling effort with visitors. The following factors will help you design the “infrastructure,” a term used to describe the actual recycling system, from containers to collection.

Types of recycling systems

There are two primary types of recycling systems for visitors in recreational areas

- 1) container-based recycling, and
- 2) drop-off recycling.

A **container-based** recycling system relies on recycling containers or bins placed in strategic locations throughout the park. Visitors can deposit materials in these bins for regular collection. This approach makes recycling easy and convenient for visitors, but often is time and labor intensive.

In a **drop-off** recycling system, visitors take recyclables to a central site or one of several collection sites. A drop-off center typically consists of a holding area or station where containers for various recyclables are located. Drop-off programs may experience lower levels of participation because visitors must save recyclables and bring them to a central location, but contamination is significantly lower. Incentives for drop-off programs could include “buy-back” of materials, where visitors are paid for recyclables or deposit fees are returned.

The type of recycling system you choose will determine the quantity and type of containers needed to collect recyclables, and how the materials will be collected in the park.

Recycling bins

Recycling bins come in all shapes, styles, colors and sizes. The type of bin that you choose can directly affect visitor participation. Selecting a bin will depend on park aesthetics, visitor demands, weather conditions and wildlife constraints. Are the bins easy to use for visitors and collection crews? Accessible? Clearly marked? Durable? These and other considerations are important in selecting the right bins:

Size of the bins depends on the type of program. If you have a commingled recycling program, you’ll need fewer but larger bins to hold all mixed recyclables. Some national parks are using 32-gallon containers for their commingled programs. Other parks have used recycling dumpsters to hold a larger quantity of material for less frequent collection.

Shape is important for ease of use. Make sure the opening is not too high or too low for visitors (including children or the wheelchair-bound), and that any lids are lightweight and easily movable.

- **Placement** is critical to encourage participation. High visitation areas where waste is typically generated — such as picnic areas, campgrounds, concession stands and visitor centers — need the highest concentration of recycling bins. Note: it’s very important to place recycling bins next to or near regular trash containers so visitors can easily separate recyclables.

Color is one good way to make your recycling bins stand out. Choose colors for your signs and bins that will attract attention, while preserving the park’s aesthetic environment. For example, some national parks use dark green recycling bins and dark brown trash cans. This subtle difference can help increase participation.

Clear identification of recycling bins helps attract visitor attention and promote recycling. Use labels or signs that can be understood by foreign visitors to indicate the type of materials that may be placed in the bins.

Materials used to fabricate the bins can help reinforce the recycling message. Consider using plastic lumber or other construction products made from recycled materials to reinforce the exterior of the bins or to build bin holding areas.

Collection systems

After deciding what type of recycling system and bins are best suited to your park or recreational area, you can focus on the collection process. It's important to be flexible: each recycling national park in the National Park Service, Dow and Huntsman program uses a unique collection system to accommodate park needs, available markets for recyclables and capabilities of local recycling businesses. Consider the following factors as you develop your collection system:

- Can you incorporate the recycling program into your existing solid waste collection service managed by the maintenance staff or a private contractor? If so, this can save valuable time and resources by consolidating equipment and collection crews.
2. Can you coordinate the collection of park recyclables with a nearby community's collection schedule? Or perhaps materials from the park could be transported to drop-off stations serving the community.
3. If the answers to 1 and 2 are no, then try to identify local recycling contractors who can handle collection and processing of recyclables. Your local directory or recycling office often can provide references for such services. Some questions to ask a contractor include:
 - What materials will they collect?
 - Will they pay you for the recyclables?
 - How should recyclables be prepared for collection?
 - How often will they pick up recyclables?
 - Do you need to purchase equipment for recycling?
4. Not all recycling companies handle all recyclable materials. In some cases, you may need to deal with several different recycling companies to handle your recyclables. For example, some recyclers may accept only waste paper while others will accept scrap metal and other materials.
5. Develop a collection route using a map of your recycling areas. Areas of high visitor traffic will need more frequent daily attention. Input from your maintenance staff or the recycling contractor will help pinpoint the most efficient route.
6. Recycling contractors will have their own collection vehicles. But if your park maintenance staff manages collection of the recyclables, you may need to purchase some collection, sorting or baling equipment. If so, make sure the vehicles:
 - have sufficient capacity,
 - offer easy loading and unloading,
 - protect materials from the weather, and
 - allow you to add compartments as the program changes or expands
7. Consider using volunteers to supplement your collection staff during peak seasons. Volunteers from the community can help paint and maintain recycling bins, empty bins or increase visitor awareness.

Summary: Step 2

Make recycling easy. Make it convenient. Tell visitors about it.

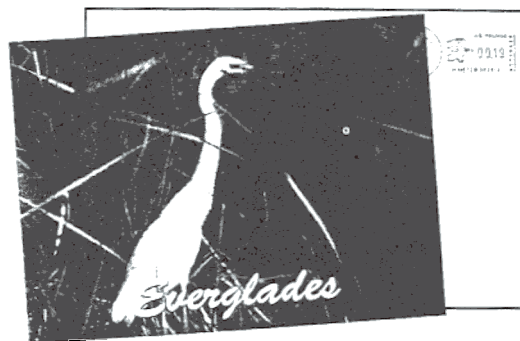
Case Study: Everglades

Achieving Recycling Independence

When Everglades National Park joined the National Park Service - Dow recycling program, a local contractor managed the daily collection of materials for sorting at a center outside the park. The park installed 75 handicapped-accessible bins fabricated with an exterior made of recycled plastic lumber to withstand Florida's humid marine environment. In the first year, the park collected more than 22,000 pounds of recyclables despite Hurricane Andrew. In early 1993, the Everglades developed a 15-year solid waste management plan. As part of that program, the park committed to creating a self-sustaining, community-based recycling infrastructure through these steps:

- Adding 108 large recycling bins to hold more materials.
- Building holding areas for materials in three key park areas to consolidate collection.
- Building a park-operated materials recovery facility (MRF) within the park to sort and process plastics, aluminum, glass, cardboard, office paper and other materials.
- Marketing the recyclables locally. Proceeds from the sale of these materials could be used to supplement park waste management funding for the program.
- Making a commitment to "affirmative procurement," or purchasing items made locally with recycled materials. This effort helps strengthen markets for recyclables in southern Florida.

Today, recycling managers at the Everglades estimate that the expanded, park-managed program has the potential to recover up to 300 tons of recyclables annually.



Case Study: Acadia

Recycling Bins on the Coast

At the start, park managers at Acadia in Maine chose a commingled recycling program to make it easier for park visitors. To help visitors distinguish between trash and recycling bins, they installed unique bins for the recyclables in locations away from trash containers. The park staff analyzed visitor traffic patterns and placed the bins where the greatest amount of waste was generated — at picnic areas and campsites. However, when reviewing the program results later, they found low visitor participation and a high level of contamination in the recycling bins.

The staff streamlined the program through a companion bin system: recycling bins were moved next to trash cans to make it easier for visitors to separate recyclables from waste. New signs were created to distinguish the two bins. And large recycling dumpsters were placed in "recycling areas" at campsites and picnic areas to collect a large volume of recyclables more efficiently. With the program's increased ease and convenience, more visitors are recycling at Acadia National Park.



Step 3 *Assessing Costs*

One common misperception is that recycling is a money-making venture. While reduced trash collection and landfill fees or proceeds from selling recyclables may offset some costs, they probably will not cover the added expenses of your recycling program.

However, effectively coordinating your recycling program and collection schedule with other programs in your area and identifying local sponsors who are willing to donate equipment or resources may help defray some costs.

Cost variables

Several variables can affect the net cost of the program:

- the amount of waste collected,
- accessible markets for recyclables,
- visitor education costs, and
- whether or not you choose to collect, sort and market your own recyclables

Budget considerations

When preparing the budget for your recycling program, consider the following questions:

- How will the material be collected? Commingled (all recyclables placed in one bin) or source separated (each material placed in a different bin)?
- How do the costs of hiring a contractor compare with the costs of collecting, sorting and marketing the materials yourself?
- How often will materials be collected? Are there seasonal variations?
- What amount of time and labor will be needed to install recycling bins?
- How will the program be launched with publicity and visitor education?
- How much funding should be devoted to equipment maintenance and replacement, operations, utilities, insurance and outreach?

A sample ledger sheet is included in the appendices to help you assess your costs.

Step 4 *Involving the Concessionaire*

Working together with the concessionaires in your park or recreational area is an important element of the program. Because concessionaires have the most frequent contact with your park visitors, they can play a vital role in visitor outreach and education.

Concessionaires can generate a tremendous volume of recyclables such as aluminum, plastics, glass, cardboard and corrugated paper. And if your concessionaires currently are generating non-recyclable waste, they may consider converting these products to recyclable materials.

Four keys to a successful park-concessionaire partnership:

1. *Involve your concessionaire in the planning process.* Outline the mutual benefits of a recycling program and ask for feedback. The concessionaires also may offer additional financial or technical resources to enhance the program.
2. *Agree on the program goals and action steps.* Why is the park starting a recycling program? Discuss how to achieve common objectives.
3. *Define the roles of the park and the concessionaires.* Discuss proposed responsibilities for each party in detail. Determine who is ultimately responsible for developing the collection system, managing visitor education, etc.
4. *Review expenses.* What costs will the park and the concessionaires incur? What are areas for increased efficiency and potential savings?

Note: Talk to your concessionaires about how to be more involved in the park's recycling effort. For example, food service concessionaires can remind visitors to recycle soda bottles or foam cups each time they sell a drink. They can post signs telling visitors what to recycle and how. Tour bus drivers can encourage participation and point out recycling bins. And hotel concessionaires can allow patrons to recycle in their rooms.

Case Study: Yosemite

Combining Two Programs, Later

Since 1974, the concessionaire at Yosemite National Park has operated a successful recycling program in the park. Over the years, the Yosemite Park and Curry Co.'s program grew to include such materials as cardboard, aluminum, scrap metal, glass, food wastes, wood, pallets, motor oil, antifreeze and even fluorescent lights — all collected at concessionaire locations.

Although visitors could participate through the concessionaire's bottle deposit program, the emphasis was not on the visitor. So in 1990, the park service initiated its own recycling program aimed at involving visitors. Bear-proof recycling bins were placed near trash containers at high visitation areas to collect plastics, glass and aluminum.

After awhile, it became clear that the two recycling programs were incompatible. Visitors and employees were confused by the programs' different messages. The park commingled recyclables, while Curry source separated; the park scattered recycling bins throughout the area, while Curry had a few recycling centers; the park accepted plastics, but Curry did not.

In 1992, discussions about merging the two programs began in earnest. Park officials worked with the new concessionaire, Yosemite Concessions Services, to see how the programs could be combined. The result: a tentative plan to relocate park bins to the highest-volume areas and establish source separation to shorten collection routes and reduce confusion.

Once implemented, recyclables collected through the visitors program will be delivered to the concessionaire's collection centers to be processed and hauled away for resale. This is the start of a valuable recycling partnership between the park and its concessionaire.



Step ₅ *Using Recycled Products*

Recycling is much more than collection and processing. It also involves bringing products made from recycled materials back to the park, office, school or community. Buying these post-consumer products is often called "closing the loop" or "affirmative procurement." Closing the loop helps to ensure that markets remain open for recyclables collected in your park.

It's important to include affirmative procurement as a goal of your recycling program. Everyone on your recycling team, especially purchasing agents and local contractors, should understand this goal to ensure support and purchase of recycled content materials on a regular basis.

Many different items can be brought back to your park or recreational area after recycling. Examples include:

- Post-consumer recycled plastics or composite building materials in the form of picnic tables, boardwalks, speed bumps, barricades, bathroom stalls, sign posts or bulletin boards
- Trash bags made with post-consumer plastic waste
- Paper for office stationery and copy machines
- Cardboard boxes
- Glasphalt: recycled glass used as raw material for a pavement mixture to repair park roads
- Re-refined motor oil
- Concrete and cement containing fly ash
- Insulation containing recycled materials
- Retread tires or rubber mats made from post-consumer recycled rubber

Bringing recycled products back to the park reinforces the message of resource conservation in the minds of park visitors. For help, check the appendix for the names of organizations that publish lists on the performance and specifications of various recycled content products.

Case Study: Grand Canyon

Bringing Recyclables Back to the Park

Officials at Grand Canyon National Park haven't overlooked the value of closing the loop on recycling. Source reduction and recycling are two important environmental goals at the park, and affirmative procurement fulfills both of these goals. At the Canyon, all purchase orders are processed through purchasing agents and reviewed by a contract specialist. These people are trained to look for and suggest recycled content items for purchase. Through their efforts, recycled materials are returned to the park. Examples include:

- Recycled content stationery and office paper
- Refillable toner cartridges for office equipment
- Retread tires
- Recycling bins made from industrial scrap
- Picnic tables made from post-consumer recycled plastics

Park managers also plan to purchase trash bags made from post-consumer recycled plastic in the future. As more staff members learn about the importance of closing the loop, more recycled products will return to the Grand Canyon.



Step 6 *Increasing Participation*

Participation is critical to the success of your recycling program. Even with the correct number of bins, strong markets for recyclables and an efficient collection plan, the program won't work unless park employees and visitors know how to do their part.

Educational materials and activities focused on recycling can generate enthusiasm and boost participation in the park. In addition, they help ensure a greater volume of collected recyclables with reduced contamination (trash in the recycling bin, or recyclables in the trash bin).

Outreach should be directed at three main audiences to accomplish these goals: employees, visitors and the media. For each audience, you can choose from a variety of outreach tactics or make up your own!

Employee orientation

Your park employees should be familiar with the recycling program goals and basic infrastructure. Rangers and maintenance crews are especially important because they have frequent contact with visitors, can help promote recycling and answer questions. Recycling information can be included in staff meetings, seasonal orientations, employee newsletters or be offered as special seminars.

Be sure to provide the following information to employees and give periodic updates on the program's progress and results:

- Why did the park begin recycling?
- What are the program goals?
- How can employees and visitors participate?
- What type of materials will be collected?
- How will the materials be collected, sorted and sent to market?
- What recycled-content products are purchased and used within the park?

How to increase visitor awareness

When visitors enter the park, recycling messages should greet them at every turn! If they don't know how to participate, recycling won't be successful. As you design educational materials, remember to keep the message simple. Repeat it in all your materials, and use graphics so international visitors can understand.

The following is a list of some educational tools that can spread the recycling message in your park. You can develop

- A recycling logo or theme to be used on educational materials
- A visitor center recycling exhibit
- Outdoor wayside exhibits for high traffic areas
- Posters for bulletin boards and concession areas
- Signs for recycling bins
- An article to be published in the park's recreational guide
- Ranger presentations for visitors
- Announcements for broadcast on the park's radio news broadcasts
- Messages to appear on receipts and products at gift shops or concession stands
- Plaques or signs to call attention to recycled content material in the park
- A brochure to distribute at the park gate, visitor center or campsites
- Slide shows for recycling presentations
- Tour bus announcements or signs

Using the media

One of the most effective ways to increase visibility for the recycling program and increase visitor awareness is through the media. Articles in local or regional newspapers and stories on area radio shows or television broadcasts can reach a wide audience with news about your program.

Once local reporters are familiar with your program, you may request that local radio stations or newspapers run public service announcements (PSAs) to promote recycling in the park.

How can you begin talking to local media?

- Call each newspaper, radio or TV station to find out who covers stories about your park, the environment or recreational activities.
- Call reporters to briefly explain the recycling program and determine their level of interest.
- Regularly update your contacts about program results and developments. Use a press release or simple fact sheet to summarize key points.
- Offer reporters park tours and photo opportunities of the program during the launch or program anniversaries. You can also offer to bring a spokesperson to their office or studios for interviews.

Case Study: Mount Rainier

Spreading the Word about Recycling

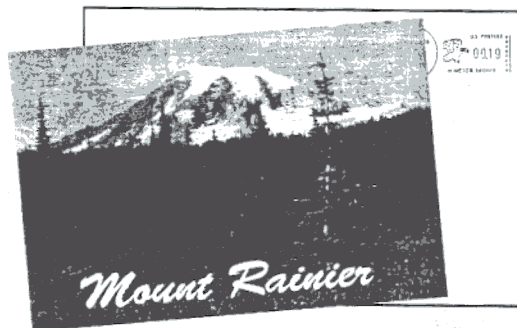
Mount Rainier National Park is an open park spread around the base of the mountain, with scattered trails and campsites that attract a large number of climbers, hikers and campers. With such widely dispersed visitors, the recycling coordinator needed a comprehensive outreach program.

For employees, Mount Rainier created a recycling presentation to be part of its employee orientation seminar. Employees also receive a brochure describing the program goals and how to participate.

To reach and motivate visitors, park officials developed a variety of outreach materials. For example, wayside exhibits are located at scenic overlooks, and bulletin boards are placed at rest areas to reach hikers. The visitors center holds a video kiosk with a short film on recycling in the park. The park newspaper carries a print PSA encouraging visitors to do their part.

Park rangers also may talk about the recycling program through campfire chats for campers or slide shows for lodge guests. Both presentations tie recycling in the park to nature and encourage visitors to help preserve the environment. In addition, campground kiosks post information and updates on recycling.

To obtain media coverage for the park, officials invited local and regional reporters to a launch ceremony and park tour. Each year, program sponsors update the local media and offer program highlights and successes through an annual report. Local radio stations also agreed to run public service announcements on the program for additional exposure.



Step 7 *Securing Additional Funding*

Joining forces with another group or program sponsor may help ensure the success of your recycling effort. Forming this type of alliance also offers you another way to secure additional funding or gain technical expertise.

Local companies and industry associations may be interested in sponsoring your recycling effort. A grocery store chain may want to demonstrate the benefits of recycling versus beverage deposits. Or a bank may want to show its customers it cares about the community.

An effective partnership

One good example is the National Park Service, Dow and Huntsman relationship. In 1990, the National Park Service set out to improve its solid waste management efforts in parks around the country by involving visitors in recycling. At the same time, Dow and Huntsman wanted to demonstrate that their plastic products could be recycled. This common belief in recycling led to a cooperative recycling effort in seven national parks, an effort that has been very successful.

Consider local companies or industry groups that you know as potential sponsors. If you want to contact one of these companies, your local Chamber of Commerce or library can help you find a name and address. You'll need to develop a proposal outlining the park's needs and goals, the level of funding required and other expectations of the potential sponsor. It's often wise to outline the relationship in a written agreement.

The key to success

Above all, the key to a successful "partnership" is a shared vision and understanding of each party's roles, responsibilities and rewards.

Step₈ *Evaluating the Program*

After your recycling program has begun, it is important to evaluate its progress. Periodic reviews will help you make adjustments, where necessary, to improve the program's efficiency.

Consider the following questions as you review the recycling program

Is the infrastructure working as planned? Do you have enough recycling bins? Are they in the right places? Do the bins need to be larger? Are they located next to trash bins? If not, should they be?

- Is the collection system efficient? Did you make the right choice between commingled and source separated? Can one truck do the work of two? Do materials need to be collected more or less often? Could you transport recyclables to a nearby collection center? Can you bale recyclables for easier transportation?

Are the materials you collect being recycled? Verify with local companies that the collected materials are being recycled as intended.

How much recyclable material are you collecting? Can you track the volume of different materials recycled? Are enough recyclables being collected to ensure the program's success?

What can you do to increase participation? Do you need more signs or different signs? Are your concessionaires involved in the program?

How can you reduce contamination? Are your signs clear and simple? Should you create other educational materials?

- Is the local recycling infrastructure changing? Are there new opportunities to link your program with local collection, sorting or processing capabilities?

Are there markets for the materials you collect? Or can you create markets?

Appendix 1 Sample Ledger Sheet

PART A

Capital Costs (Recycling Program Only)

Building/Office Construction and Land Acquisition
Site Preparation/Improvement
Construction of Retaining Walls/Bins/etc.
Equipment
Shredder
Glass Crusher
Compactor
Magnetic Separator
Perforator Granulator Baler
Front End Loader
Trucks (pickup, hoist truck, etc.)
Trailers/Satellite Trailers of Containers
Roll-off Containers
Miscellaneous Equipment
Start-up Publicity and Education Costs (signs, advertisements, notices, publications, etc.,)

TOTAL ANNUAL CAPITAL COSTS

\$

\$

PART B

Operational Costs (Recycling Program Only)

Labor Costs

Wages
Benefits
Overtime
Part-time Personnel from Other Departments

Vehicles

Operation (gas, oil, etc.)
Maintenance

Stationary Equipment - Operation and Maintenance Including Replacement Cost

Building Maintenance
Utilities
Insurance Costs
Services from Other Departments (consultants, accounting, etc.)
Publicity and Education Programs

TOTAL ANNUAL OPERATIONAL COSTS

\$

PART C

Annual Revenue from Sale of Material

Material	Tons Recycled	Revenue Received
Paper		
Glass		
Plastics		
Aluminum		
Other		
ANNUAL TOTALS		

PART D

Calculation of Disposal Avoidance Credit (DAC)

Annual Cost of Operating Disposal Area/

Transfer Station/Incinerator (salaries, tipping fees, hauling fees, etc) \$

Annual Tonnage Disposed of

Annual Operating Cost _____ / Annual Tonnage _____ = Cost per Ton \$

Tons of Materials Recycled _____ x Cost per Ton _____ = DAC \$ _____

(from part C)

PART E

Summary

Annual Capital Costs (from Part A)

Annual Operational Costs (from Part B)

TOTAL ANNUAL COSTS \$ _____

Annual Materials Revenue (from Part C)

Annual Disposal Avoidances Credit (DAC)

TOTAL ANNUAL REVENUES \$ _____

*Total annual costs equal to or exceeding annual revenues indicates marginal program. A recheck of figures or program change may be in order.

NOTE: Printed Courtesy of Keep America Beautiful, Inc

Appendix 2 Visitor Survey (Sample)

Are you very, somewhat or not at all familiar with the parks recycling program?

How did you learn about the recycling program? (list all answers)

During your stay in the park on this or previous visits, did you recycle waste while you were in the park?

What materials did you recycle?

Do you think there are too many, not enough or just the right amount of recycling bins in the park?

Do you think these recycling bins are located in places that make them very convenient, somewhat convenient or not at all convenient to use?

Are the instructions on the bins clear? Do you know what materials can and cannot be recycled through this program?

Do you have any suggestions about how park visitors could be encouraged to participate more in the parks recycling program?

Do you have any other comments you'd like to make about the recycling program?

Appendix 3

Additional Resources

Recycling Agencies

Center for Plastics Recycling Research
Rutgers University
Livingston Campus, Bldg. 4109
P. O. Box 1179
New Brunswick, NJ 08903
908/445-4402

State Agencies

Alabama

Dept. of Environmental Management
Land Division
P.O. Box 301463
Montgomery, AL 36130-1463
205/271-7726

Alaska

Mr. David Wigglesworth
3601 C Street, Suite 1334
Anchorage, AK 99503
907/349-7755

Arizona

Recycling Coordinator
Arizona Dept. of Environment & Quality
3033 N. Central Avenue
Phoenix, AZ 85012
602/207-4171

Arkansas

Recycling Coordinator
Dept. of Pollution Control/Ecology
P.O. Box 8913
Little Rock, AR 72219-8913
501/562-6533

California

CA Integrated Waste Mgmt. Board
8800 Cal Center Drive
Sacramento, CA 95826-3268
916/255-2381

Colorado

Office of Energy Conservation
1675 Broadway, Suite 1300
Denver, CO 80202-4613
303/620-4292

Connecticut

Mr. John Cimochofski
79 Elm Street
Hartford, CT 06106-5127
203/424-3365

Delaware

Environmental Specialist
Dept. of Natural Resources & Env. Control
Attn: Solid Waste Branch
PO Box 1401
89 Kings Highway
Dover, DE 19903
302/739-3822

Attn: Manager/Gen'l Services-Recycling
Program

Delaware Solid Waste Authority
1128 S. Bradford
P.O. Box 455
Dover, DE 19903-0455

Florida

Dept. of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904/922-6104

Georgia

Recycling Coordinator
Dept. of Community Affairs
1200 Equitable Bldg.
100 Peachtree Street
Atlanta, GA 30303
404/658-6147

Hawaii

Solid Waste Coordinator
Dept. of Health/Solid Waste Management
Five Waterfront Plaza
500 Ala Moana Blvd., Suite 250
Honolulu, HI 96813
808/586-4240

Idaho

Community Programs
Idaho Div. of Environmental Quality
1410 N. Hilton Street
Boise, ID 83706

Illinois

Office of Recycling & Waste Reduction
Dept. of Energy/Nat'l Resources
325 W. Adams Street, Room 300
Springfield, IL 62704-1892

Office of Pollution Prevention
Illinois EPA
P.O. Box 19276
2200 Churchill Road
Springfield, IL 62794
217/782-8700

Indiana

Dept. of Environmental Management
P.O. Box 6015
100 N. Senate Ave.
Indianapolis, IN 46206-6015
317/232-8172

Iowa

Dept. of Natural Resources
Wallace Building
900 E. Grand Avenue
Des Moines, IA 50319
515/281-8263

Kansas

Dept. of Commerce
700 S.W. Harrison, Suite 1300
Topeka, KS 66603-3712
913/296-3481

Kentucky

Division of Waste Management
14 Reilly Road
Frankfort, KY 40601
502/564-6716

Louisiana

Dept. of Environmental Quality
6th Floor, 7290 Bluebonnet
P.O. Box 82178
Baton Rouge, LA 70810

Solid Waste Division

Dept. of Environmental Quality
P.O. Box 82178
Baton Rouge, LA 70884-2178

Maine

Office of Waste Reduction/Recycling
State House Station #154
Augusta, ME 04333
207/287-5300

Maryland

Office of Waste Minimization
Dept. Of The Environment
2500 Broening Highway
Baltimore, MD 21224
410/631-3315

Massachusetts

Dept. of Environmental Protection
1 Winter Street
Boston, MA 02108
617/292-5963

Michigan Dept. of Natural Resources Stephen T. Mason Bldg, 7th Floor 530 W. Allegan Lansing, MI 48933 517/373-2329	New Mexico Solid Waste Division NM Environment Dept. 1190 St. Francis Street, Rm S205C P.O. Box 26110 Santa Fe, NM 87502 505/827-2924	South Carolina SC Clean & Beautiful 1205 Pendleton Street, Suite 517 Columbia, SC 29201 803/734-0143
Minnesota Office of Environmental Assistance 1350 Energy Lane St. Paul, MN 55108 612/649-5788	New York Waste Reduction and Recycling 50 Wolf Road Albany, NY 12233-4010 518/457-6603	South Dakota Dept. of Environmental & Natural Resources 523 East Capitol Ave Pierre, SD 57501 605-773-3153
Mississippi MS Dept. of Environmental Qualit P.O. Box 10385 Jackson, MS 39289-0385 601/961-5171	North Carolina Office of Waste Reduction 3825 Barrett Drive Raleigh, NC 27609 919/571-4100	Tennessee Dept. of Environment & Conservation 401 Church Street 14th Floor, LNC Tower Nashville, TN 37243-0454 615/532-0736
Missouri Solid Waste Mgmt. Program 205 Jefferson, 10th Floor Jefferson City, MO 65102 314/751-5401	North Dakota Dept. of Health/Waste Mgmt. P.O. Box 5520 1200 Missouri Ave. Bismarck, ND 58502-5520 701/221-5166	Texas Texas Water Commission P.O. Box 13087 Austin, TX 78711 512/239-1000
Montana Dept. of Health and Environmental Sciences 836 Front Street P.O. Box 200901 Helena, MT 59620-0901 406/444-2821	Ohio Dept. of Natural Resources 1889 Fountain Square, Bldg F-2 Columbus, Ohio 43224 614/265-7069	Utah Dept. of Environmental Quality 168 North, 1950 West Salt Lake City, UT 84114-4810 801/536-4400
Nebraska Dept. of Administrative Services Material Division, P.O. Box 94847 301 Centennial Mall South Lincoln, NE 68509-4847 402/471-2431	Oklahoma Dept. of Environmental Quality Superfund Program 1000 N.E. 10th Street Oklahoma City, OK 73117-1212 405/271-7213	Vermont Recycling & Resource Conservation Solid Waste Mgmt. Division 103 South Main Street, Laundry Bldg. Waterbury, VT 05671-0407 802/241-3444
Nevada Office of Community Services Suite 400, West King Street Carson City, NV 89710 702/887-2290	Oregon Dept. of Environmental Quality 811 S.W. 6th Ave Portland, OR 97204 503/229-5253	Virginia Dept. of Environmental Quality 629 E. Main Street Richmond, VA 23219 804/225-2667
New Hampshire Dept. of Environmental Services Waste Mgmt Division 6 Hazen Drive Concord, NH 03301-6509 603/271-2901	Pennsylvania Bureau of Waste Mgmt. P.O. Box 8472 Market Street State Office Bldg Harrisburg, PA 17105-8472 717/787-7382	Washington Dept. of Ecology Solid Waste Services P.O. Box 47600 Olympia, WA 98504-7600 206/407-6000
New Jersey Office of Recycling 840 Bear Tavern Road, CN 414 Trenton, NJ 08625-0414 609/530-8208	Rhode Island Dept. of Environment Mgm 83 Park Street Providence, RI 02903 401/277-3434	West Virginia Division of Natural Resources, Conservation, Education & Litter Control 1900 Kanawaha Blvd., East Bldg #3, Rm 732 Charleston, West Virginia 25305-0665 304/558-3370

Wisconsin

Waste Reduction & Recycling Section
Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707
608/267-7566

Wyoming

Wyoming Dept. Environmental Quality
122 West 25th Street
Cheyenne, WY 82002
307/777-7746

Recycling Associations

National Recycling Coalition
1275 K Street, NW, Suite 400
Washington, DC 20005
202/625-6406

Polystyrene Packaging Council
1275 K Street, NW
Washington, DC 20005
202/822-6424

National Polystyrene Recycling Company
42 Killdeer Ct.
P.O. Box 338
Bridgeport, NJ 08014
609/467-9377

American Plastics Council
1275 K Street, NW, Suite 400
Washington, DC 20005
202/371-5319

Aluminum Recycling Association
1000 16th Street, NW
Suite 603
Washington, DC 20036
202/785-0951

Steel Can Recycling Institute
Foster Plaza 10
680 Andersen Drive
Pittsburgh, PA 15220-2700
412/922-2772

National Office Paper Recycling Project
U.S. Conference of Mayors
1620 I Street, NW, 4th Floor
Washington, DC 20006

Glass Packaging Institute
1627 K Street, NW, Suite 800
Washington, DC 20006
202/887-4850

Recycling Publications

Resource Recycling
P.O. Box 10540
Portland, OR 97210
503/227-1319

Recycling Times
4301 Connecticut Avenue, NW, Suite 300
Washington, DC 20036
202/244-4700

Recycling Today - Municipal Market
Edition
4012 Bridge Avenue
Cleveland, OH 44113
216/961-4130

Solid Waste Management

Agencies

Integrated Solid Waste Alternatives
Program
National Park Service
800 North Capitol Street, NW
Mail Stop 610
Washington, DC 20005

Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
U.S. Environmental Protection Agency
Resource Conservation and Recovery
Hotline
(for EPA solid waste publications and
resources)
1-800/424-9346

Associations

National Solid Waste Management
Association
4301 Connecticut Avenue, NW, Suite 300
Washington, DC 20036
202/659-4613

Keep America Beautiful, Inc.
Mill River Plaza
9 West Broad Street
Stamford, CT 06902
203/323-8987

Publications

Garbage Magazine
2 Main Street
Gloucester, MA 01930
508/283-3200

Integrated Waste Management
1221 Avenue of the Americas
36th Floor
New York, NY 10020
212/512-6410

Reusable News
Communications Services Branch (OS-305)
Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Solid Waste Report
Business Publishers, Inc.
951 Pershing Drive
Silver Spring, MD 20910
301/587-6300

Waste Age
4301 Connecticut Avenue, NW, Suite 300
Washington, DC 20036
202/861-0708

Equipment

For a directory of companies that provide
bins, dumpsters, trucks, balers, shredders,
and other recycling equipment, contact:

National Solid Waste Management
Association
4301 Connecticut Avenue, NW, Suite 300
Washington, DC 20036
202/861-0708

Keep America Beautiful
Mill River Plaza
9 West Broad Street
Stamford, CT 06902
203/323-8987

For a list of waste assessment
companies, affirmative
procurement procedures, or
post-consumer product
specifications, contact:

Integrated Solid Waste Alternatives
Program
National Park Service
800 North Capitol Street, NW
Mail Stop 610
Washington, DC 20005